

**ASSIGNMENT REC**  
**-PA-**

08-29-2001



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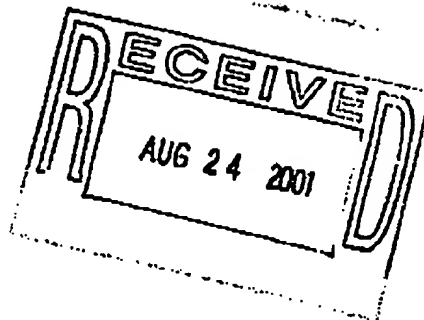
To: Honorable Commissioner of Patents and Trade.

Please record the attached original document(s) or copy thereof.

## 1. Name of conveying party(ies)

- a) Steven R. Spielman  
 b) Yung Cheng Lo  
 c) David C. Lee  
 d) Judith C. Powelson

08/24/01



## 2. Name and address of receiving party(ies):

- a) Name: Calimetrix, Inc.  
 b) Address: 815 Atlantic Avenue #105  
 Alameda, CA 94501

## 3. Nature of conveyance

- |                                     |                    |                          |                   |
|-------------------------------------|--------------------|--------------------------|-------------------|
| <input checked="" type="checkbox"/> | Assignment         | <input type="checkbox"/> | Merger            |
| <input type="checkbox"/>            | Security Agreement | <input type="checkbox"/> | Change of Name    |
| <input type="checkbox"/>            | Other _____        | <input type="checkbox"/> | License Agreement |

Execution Date: August 14, 2001

## 4. Application Number(s) or Patent Number(s): 09/828,311

The title of the (new) application is:

**DIGITAL AUTOMATIC GAIN CONTROL OF A MULTILEVEL OPTICAL DISC READ SIGNAL**

## 5. Please send all correspondence concerning this (these) documents to:

Customer No. 21912  
 Van Pelt & Yi LLP  
 4906 El Camino Real, Suite 205  
 Los Altos, CA 94022  
 (650) 903-3500 (PH)  
 (650) 903-3501 (FX)

## 6. Total number of applications and patents involved: 1

## 7. Total fee (37 CFR 3.41): \$40.00

- ☒ Enclosed  
☒ Any deficiencies are hereby authorized to be charged to Deposit Account No. 50-0685 (Order No. CALMP016)

## 8. To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Date: August 17, 2001

William J. James  
 William J. James  
 Registration No. 40,661

08/29/2001 LNUELLER 00000010 09828311

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40.00 OP

Attorney Docket No. CALMP016

PAGE 7/14 \* RCVD AT 2/3/2004 6:46:55 PM [Eastern Standard Time] \* SVR:USPTO-EFXXRF-1/1 \* DNIS:8729306 \* CSID:408 433 7460 \* DURATION (mm-ss):03-56

**ASSIGNMENT OF PATENT APPLICATION**

(Not Accompanying Application)

Whereas I/we the undersigned inventor(s) have invented certain new and useful improvements as set forth in the patent application entitled:


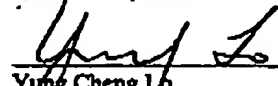
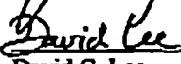
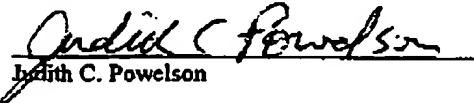
**DIGITAL AUTOMATIC GAIN CONTROL OF A MULTILEVEL OPTICAL DISC READ SIGNAL**

for which I (we) have executed an application for a United States Letters Patent which was filed in the U.S. Patent and Trademark Office on April 6, 2001, and which bears the Application No. 09/828,311..

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I/We the undersigned inventor(s) hereby:

- 1) Sell(s), assign(s) and transfer(s) to Calimetries, Inc. a California corporation having a place of business at 815 Atlantic Avenue #105, Alameda, CA 94501 (hereinafter referred to as ("ASSIGNEE"), the entire right title and interest in any and all improvements and inventions disclosed in, application(s) based upon, and Patent(s) (including foreign patents) granted upon the information which is disclosed in the above referenced application.
- 2) Authorize and request the Commissioner of Patents to issue any and all Letters Patents resulting from said application or any division(s), continuation(s), substitutes(s) or reissue(s) thereof to the ASSIGNEE.
- 3) Agree to execute all papers and documents and, entirely at the ASSIGNEE's expense, perform any acts which are reasonably necessary in connection with the prosecution of said application, as well as any derivative applications thereof, foreign applications based thereon, and/or the enforcement of patents resulting from such applications.
- 4) Agree that the terms, covenants and conditions of this assignment shall inure to the benefit of the Assignee, its successors, assigns and other legal representative, and shall be binding upon the inventor(s), as well as the inventor's heirs, legal representatives and assigns.
- 5) Warrant and represent that I/we have not entered, and will not enter into any assignment, contract, or understanding that conflicts with this assignment.

Signed on the date(s) indicated beside my (our) signature(s).

- |    |   |                          |
|----|---|--------------------------|
| 1) | Signature: <u></u> | Date: <u>14 Aug 2001</u> |
|    | Typed Name: Steven R. Spielman  |                          |
| 2) | Signature: <u></u> | Date: <u>8/14/01</u>     |
|    | Typed Name: Yung Cheng Lo   |                          |
| 3) | Signature: <u></u> | Date: <u>8/14/01</u>     |
|    | Typed Name: David C. Lee  |                          |
| 4) | Signature: <u></u> | Date: <u>8-14-01</u>     |
|    | Typed Name: Judith C. Powelson  |                          |

Atty Dkt. No. CALMP016

**GENERAL PATENT ASSIGNMENT**

WHEREAS, Calimetrics, Inc., a California corporation ("Assignor") owns the patents and patent applications listed and described on Schedule A attached hereto (the "Patents"); and

WHEREAS, Assignor and LSI Logic Corporation ("Assignee") have entered into an Asset Purchase Agreement dated November 21, 2003, pursuant to which Assignor has agreed, *inter alia*, to grant to Assignee all of Assignor's right title and interest in and to the Patents and Assignee desires to acquire the entire right, title and interest in and to the Patents.

NOW, THEREFOR, in consideration of the foregoing and the sum of One Dollar (\$1.00), and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor does hereby irrevocably sell, assign, convey and transfer unto Assignee, the entire right, title and interest in and to the Patents, anywhere in the world, including any patents issuing from or based upon all patent applications thereon, any foreign counterparts thereof, and any continuations, continuations-in-part, divisions, reissues or extensions of the foregoing, and including, without limitation, the right to sue for and recover damages for any past, present or future infringement of the foregoing, the same to be held and enjoyed by Assignee for its own use, and for its legal representatives and assigns, to the full end of the term for which patents are granted, as fully and entirely as the same would have been held by Assignor had this assignment and sale not been made.

Assignor agrees to execute, any further papers and to do such other acts as may be necessary and proper, or otherwise required by the Asset Purchase Agreement, to vest full title in and to the Patents in Assignee.

IN WITNESS WHEREOF, Assignor has caused these presents to be duly executed in a manner appropriate thereto as of the 21st day of November 2003.

CALIMETRICS, INC.

By: 

Name: Kenneth C Campbell

Title: President & CEO

**ACKNOWLEDGMENT**

State of California )  
 ) ss:  
County of San Bernardino

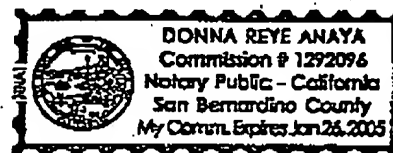
On this 20<sup>th</sup> day of November 2003, before me, the undersigned, personally appeared Kenneth C. Campbell, ☐ personally known to me - OR - ☒ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

Signature: Donna Reye Anaya

Notary Public

(Seal)



## SCHEDULE A

### Patents and Patent Applications

#### Issued Patents:

#### Calimetrics Original Issued US Patents (17)

| Patent No. | Title   | Inventors   | Filing Date | Issue Date |
|------------|---|---|-------------|------------|
| 5,818,806  | Method and Apparatus for Providing Equalization for the Reading of Marks on Optical Data Storage Media  | Wong, Spielman  | 5/6/1997    | 10/6/1998  |
| 5,854,779  | Optical Disc Reader for Reading Multiple Levels of Pits on an Optical Disc                              | Johnson, B; McDermott; O'Neil; Pietrzyk; Spielman; Wong                                       | 1/5/1996    | 12/29/1998 |
| 6,115,348  | Information Storage Systems Utilizing Media With Optically Differentiated Data Sites                    | Guerra  | 12/24/1997  | 9/5/2000   |
| 6,148,428  | Method and Apparatus for Modulation Encoding Data for Storage on a Multi-Level Optical Recording Medium | Welch; Wong; McLaughlin   | 5/21/1998   | 11/14/2000 |
| 6,249,507  | Information Storage Systems Utilizing Media With Optically Differentiated Data Sites                    | Guerra  | 8/15/2000   | 6/19/2001  |
| 6,269,060  | Programmable Write Signal Generator   | Harvey; Swuito  | 9/9/1999    | 7/31/2001  |
| 6,275,458  | Method and Apparatus for Reading and Writing A Multi-Level Signal from an Optical Disc                  | Wong; Spielman; Lee; Martin   | 2/18/1999   | 8/14/2001  |
| 6,377,529  | Method for Providing Improved Equalization for the Reading of Marks on Optical Data-Storage Media       | Lee; Ling; Lo; McLaughlin   | 6/1/2000    | 4/23/2002  |
| 6,381,724  | Method and Apparatus for Modulation Encoding Data for Storage on a Multi-Level Optical Recording Medium | Welch; Wong; McLaughlin   | 8/22/2000   | 4/30/2002  |
| 6,385,255  | Coding system and Method for Partial Response Channels  | McLaughlin; Lee; Zingman; Fan   | 8/8/1999    | 5/7/2002   |
| 6,398,789  | Data Storage System and Methods Using Diffractive Near-Field Optics                                     | Guerra; Kendra  | 2/27/1998   | 5/28/2002  |
| 6,504,807  | Programmable Write Signal Generator   | Harvey; Swuito  | 6/7/2001    | 1/7/2003   |
| 6,604,219  | DC Control of a Multilevel Signal   | Lee, Fan, Lo  | 2/2/2000    | 8/5/2003   |
| 6,608,807  | Generating a Multilevel Calibration Sequence for Precompensation  | Lee   | 2/2/2000    | 8/19/2003  |
| 10/302,761 | Programmable Write Signal Generator (allowed)   | Harvey; Swuito  | 11/22/2002  |            |
| 09/910,464 | Method and Apparatus for Reading and Writing A Multi-Level Signal from an Optical Disc (allowed)        | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 7/19/2002   |            |
| 09/745,748 | Optical Disk Initialization Method and Apparatus (allowed)  | Guerra; Vezenov   | 12/22/2000  |            |

### Acquired Issued US Patents (20)

| Patent No. | Title   | Inventors                                 | Filing Date | Issue Date |
|------------|---|---|-------------|------------|
| 5,113,387  | THREE LASER OPTICAL DISK DRIVE SYSTEM                               | Goldsmith, Ziegler                        | 12/12/1989  | 5/12/1992  |
| 5,128,849  | OPTICAL DISK STRUCTURES FOR ELECTRON TRAPPING OPTICAL MEMORY MEDIA  | Podraczky, Ziegler                        | 12/12/1989  | 7/7/1992   |
| 5,195,082  | OPTICAL DISK STRUCTURES FOR ELECTRON TRAPPING OPTICAL MEMORY MEDIA  | Revay, Brower, Espin                      | 4/22/1992   | 3/16/1993  |
| 5,537,382  | PARTIAL RESPONSE CODING FOR A MULTI-LEVEL OPTICAL RECORDING CHANNEL | McLaughlin, Calderbank, Laroia, Gorpheide | 11/22/1994  |            |
| 5,657,014  | M=7(3,7) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 8/12/1997  |
| 5,659,310  | M=5(0,2) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 8/19/1997  |
| 5,659,311  | M=6(2,4) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 8/19/1997  |
| 5,663,722  | M=10(3,6) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA               | McLaughlin                                | 5/12/1995   | 9/2/1997   |
| 5,663,723  | M=7(1,3) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 9/2/1997   |
| 5,668,546  | M=6(3,6) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 9/16/1997  |
| 5,670,958  | M=5(3,7) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 9/23/1997  |
| 5,675,330  | M=5(4,11) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA               | McLaughlin                                | 5/12/1995   | 10/7/1997  |
| 5,680,128  | M=6(3,8) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 10/21/1997 |
| 5,682,154  | M=4(1,2) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 10/28/1997 |
| 5,682,155  | M=6(4,11) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA               | McLaughlin                                | 5/12/1995   | 10/28/1997 |
| 5,748,117  | M=8(1,3) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 5/5/1998   |
| 5,748,118  | M=7(3,8) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 5/5/1998   |
| 5,757,293  | M=8(1,2) RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA                | McLaughlin                                | 5/12/1995   | 5/28/1998  |
| 5,781,130  | M-ARY (D,K) RUNLENGTH LIMITED CODING FOR MULTI-LEVEL DATA           | McLaughlin                                | 5/12/1995   | 7/14/1998  |
| 6,150,964  | M=10(2,10), D=3.75 RUNLENGTH LIMITED CODE FOR MULTI-LEVEL DATA      | McLaughlin                                | 8/20/1997   | 11/21/2000 |

### Calimetrics Issued Foreign Patents (2)

| Patent No. | Country   | Title   | Inventors      | Filing Date | Issue Date                             |
|------------|-----------|---|----------------|-------------|--|
| 707392     | Australia | Apparatus and Methods for Forming and Use with Variable Pit Depth Optical Recording Media | Wong, Spielman | 3/24/1997   | 8/7/1999 (acceptance to be advertised) |
| 2,249,403  | Canada    | Apparatus and Methods for Forming and Use with Variable Pit Depth Optical Recording Media | Wong, Spielman | 3/24/1997   | 1/9/2001                               |

**Pending Patent Applications:**

**Calimetrics Original US Patents Pending (14)**

| Serial No. | Title   | Inventors  | Filing Date |
|------------|---|--|-------------|
| 09/373,916 | High Density Data Write Strategy  | O'Neill; Wong; Balasubrama; Bashaw; Learmonth; McDermott; Narayan; Powelson; Warland; Zhou | 8/12/1999   |
| 09/478,395 | Method and Format for Reading and Writing in a Multilevel Optical Disc System                                       | Wong; Lewis; Lee; Ling; Pope; Spielman; Zingman  | 9/16/2003   |
| 09/498,898 | Write Compensation for a Multi-Level Data Storage System  | Powelson; Warland  | 2/2/2000    |
| 10/171,394 | Advanced High Density Data Write Strategy   | Balasubramanian; Hiestmaier; Narayan; Powelson; Stinebaugh; Warland; Zhou                  | 8/12/2002   |
| 09/828,311 | Digital Automatic Gain Control of a Multilevel Optical Disc Read Signal   | Lo; Lee; Powelson; Spielman  | 4/8/2001    |
| 09/872,486 | Synchronization in Multilevel Optical Data Storage  | Lee; Spielman; Zingman; Lewis  | 5/31/2001   |
| 10/012,257 | Write Compensation for Data Storage and Communication System  | Powelson; Warland; Harvey; Lo; Pepin; Spielman; Zhou; Zingman; Lee                         | 11/8/2001   |
| 09/823,852 | High Density Analog Recording   | Miyagawa; Mansuripur   | 3/29/2001   |
| 09/842,214 | Method of Fabricating Sub-Micron Hemispherical and Hemicylindrical Structures from Non-Spherically Shaped Templates | Vezanov; Guerra; Warr; Sullivan  | 4/25/2001   |
| 09/842,098 | Optical Storage Medium with Virtual Track Pitch   | Vezanov; Guerra; Warr; Sullivan; Nelson  | 4/25/2001   |
| 10/057,774 | Advanced Forward Error Correction   | McLaughlin; Thangaraj  | 1/22/2002   |
| 10/387,232 | Secure Data Storage   | Wong; Harvey; Lee; Lewis; Spielman; Tan; Warland   | 3/11/2003   |
| 10/455,758 | DC Control of a Multilevel Signal   | Lee; Fan; Lo   | 8/5/2003    |
| 10/608,890 | Generating a Multilevel Calibration Sequence for Precompensation  | Lee  | 6/26/2003   |

**Calimetrics Foreign Patents Pending (7)**

| App. No.        | Country   | Title   | Inventors   | Filing Date |
|-----------------|-----------|---|---|-------------|
| 97917035.4      | Europe    | Apparatus and Methods for Forming and Use with Variable Pit Depth Optical Recording Media | Wong and Spielman   | 3/24/97     |
| 33584/00        | Australia | Method and Apparatus for Reading and Writing in a Multilevel Optical Disc                 | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 2/8/2000    |
| 2,356,858       | Canada    | Method and Apparatus for Reading and Writing in a Multilevel Optical Disc                 | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 2/8/2000    |
| 911733.4        | Europe    | Method and Apparatus for Reading and Writing in a Multilevel Optical Disc                 | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 2/8/2000    |
| 2000-800,284    | Japan     | Method and Apparatus for Reading and Writing in a Multilevel Optical Disc                 | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 8/10/2001   |
| 10-2001-7010512 | Korea     | Method and Apparatus for Reading and Writing in a Multilevel Optical Disc                 | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 8/18/2001   |
| 200104098-9     | Singapore | Method and Apparatus for Reading and Writing in a Multilevel Optical Disc                 | Wong; Fan; Lee, Ling, Lo, McLaughlin; McPheters, Martin, Powelson; Spielman; Warland, Zingman | 2/8/2000    |